

Notice of Allowability

Application No.

10/736,724

Examiner

Hung Henry V. Nguyen

Applicant(s)

NISHIMURA ET AL.

Art Unit

2851

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to Interview conducted on 8/17/06.
2. ☒ The allowed claim(s) is/are 1-25.
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☐ All b) ☐ Some* c) ☐ None of the:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO-1449 or PTO/SB/08), Paper No./Mail Date _____
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☒ Interview Summary (PTO-413), Paper No./Mail Date 20060817.
7. ☒ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____.


HENRY HUNG NGUYEN
PRIMARY EXAMINER

EXAMINER'S AMENDMENT

1. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Holly L. Rudnick on August 17, 2006.

The application has been amended as follows:

IN THE CLAIMS

Please amend claims 1, 4, 5, 7, 11, 22, 25 in the application as follows:

Claim 1 (Currently amended) A method for performing photolithography, comprising:

providing a spatial light modulator with data representing a portion of an image to be photolithographically transferred to a substrate, the spatial light modulator comprising light modulation elements;

transferring the portion of the image from a first set of the light modulation elements onto an area of the substrate; and

transferring the portion of the image from a second set of the light modulation elements onto the area of the substrate;

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wherein the area is an area corresponding to the portion of the image and selected to bear the portion of the image, wherein the data includes a set of data that defines the portion of the image, and wherein, for each said transferring, the associated set of light modulation elements uses said set of data to transfer the portion of the image onto the area.

Claim 4 (Currently amended) The method according to claim 1, wherein said transferring the portion of the image from the first set of light modulation elements further comprises: loading the set of data ~~representing the portion of the image~~ into the first set of light modulation elements; and

Altering the state of ones of the first set of light modulation elements in response to the set of data.

Claim 5 (Currently amended) The method according to claim 4, wherein the first set of light modulation elements includes a defective light modulation element, and wherein said transferring the portion of the image from the second set of light modulation elements further comprises:

placing one of the light modulation elements in the second set of light modulation elements corresponding to the defective light modulation element in the first set of light modulation elements in the correct state as a function of the set of data loaded into the second set of light modulation elements.

Claim 7 (Currently amended) A method for performing photolithography, comprising:

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positioning a substrate having a photosensitive surface in relation to a spatial light modulator comprising light modulation elements;

exposing an area of the photosensitive surface with a portion of an image in responses to respective states of a first set of the light modulation elements;

altering the positional relationship between the substrate and the spatial light modulator;
and

exposing the area of the photosensitive surface with the portion of the image in response to respective states of a second set of the light modulation elements;

wherein the area is an area corresponding to the portion of the image and selected to bear the portion of the image, wherein the portion of the image is defined by a set of data, and wherein, for each said exposing, the associated set of light modulation elements uses said set of data to expose the area with the portion of the image.

Claim 11 (Currently amended) A photolithography apparatus, comprising:

light modulation elements, including a first set of said light modulation elements ~~operable~~ to photolithographically transfer a portion of an image onto an area of a substrate, and a second set of said light modulation elements ~~operable~~ to photolithographically transfer the portion of the image onto the area of a substrate; and

memory elements in communication with respective ones of said light modulation elements, said memory elements being configured to store data representing the portion of the image;

wherein the area is an area corresponding to the portion of the image and selected to bear the portion of the image, wherein the data includes a set of data that defines the portion of the image, and wherein, for each said transfer, the associated set of light modulation elements uses said set of data to transfer the portion of the image onto the area.

Claim 22 (Currently amended) A photolithography system for transferring an image to a substrate having a photosensitive surface, said system comprising:

a spatial light modulator including ~~light modulation elements~~, a first set of [the] light modulation elements ~~operable~~ to transfer a portion of an image onto an area of a substrate,

and a second set of [the] light modulation elements ~~operable~~ to transfer the portion of the image onto the area of a substrate; and

a stage operable to move one of said spatial light modulator and the substrate relative to the other;

wherein the area is an area corresponding to the portion of the image and selected to bear the portion of the image, wherein the portion of the image is defined by a set of data, and wherein, for each said transfer, the associated set of light modulation elements uses said set of data to transfer the portion of the image onto the area.

Claim 25 (Currently amended) The photolithography system according to claim 22, wherein the light modulation elements further include respective memory elements configured to store the set of data ~~representing the respective portion of the image~~, the light modulation elements being alterable in response to the data stored in the respective memory elements.

Reasons for Allowance

2. The following is an examiner's statement of reasons for allowance: Amended claims 1-25 have been found to be allowable since while the prior art of record teaches a lithographic apparatus and method for transferring a first image portion generated by a spatial light modulation device onto a first area of a substrate and for transferring a different second image portion generated by the spatial light modulation device onto a second area of the substrate but the prior art of record either alone or in combination, neither discloses nor makes obvious the combination of a photolithographic apparatus and corresponding method comprising, among other features, light modulation elements having a first set of light modulation elements for transferring a portion of an image onto an area of a substrate and a second set of light modulation elements for transferring the portion of the image onto the area of the substrate wherein the area is an area corresponding to the portion of the image and selected to bear the portion of the image, wherein the portion of the image is defined by a set of data, and wherein, for each said transfer, the associated set of light modulation elements uses the set of data to transfer the portion of the image onto the area, as recited in the instant claims of the present invention.

3. Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

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4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hung Henry V. Nguyen whose telephone number is 571-272-2124. The examiner can normally be reached on Monday-Friday (First Friday off).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Diane Lee can be reached on 571-272-2399. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Hung Henry V Nguyen
Primary Examiner
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hvn
8/17/06